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White Paper on Machine vs. Human Translation

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"Excellent" ★★★★★

BBB A+

White Paper on Machine vs. Human Translation

The translation and language solutions industry has experienced substantial technological progress over the past 25 to 30 years – shifting from relying primarily on manual processes to utilizing and benefitting from technological advancements in software tools and systems.

For highly competitive and success-oriented Language Service Providers (LSPs), these technological enhancements mean that it is no longer viable to solely offer "traditional" translation services performed by professional human linguists. Instead, these LSPs have recognized the ongoing developments of AI and its incorporation in language solutions through machine translation, or MT. Simply put, this is an automated process by which trained software translates one language (source language) into another (target language).

There are typically three approaches to document translation:
The first is the conventional approach involving translations provided solely by professional linguists.
The second option is a hybrid approach that deploys the skills and expertise of a human linguist to manually revise and enhance a translation that was generated through AI, or machine-based translation.
The third option involves generating translations by means of computer software. These three options are described in greater detail below.

1. Human Translations - the Conventional Approach to Translations

The conventional approach to translations is based on the concept of "human translation". This method involves a professional linguist or team of linguists to manually perform the translation and the associated quality assurance work that is required to produce a high-quality product. The linguists must be highly skilled in both the source language and the target language as well as have a good understanding of the subject matter field addressed in the text.

In order to produce a high level of quality and accuracy as well as to ensure that the services provided are reliable and consistent according to international standards, Language Service Providers should be compliant with industry-specific ISO standards, e.g., ISO 17100:2015. This certification is important for translation services, as it guarantees the integrity of their work and provides assurance to their clients.

The required steps as specified in the ISO 17100:2015 quality standard are:

• Project setup and document preparation
• Project review
• Translation by professional linguist(s)
• Bilingual editing (revision) of the translation by independent editor(s)
• Final review by a professional proofreader and project manager

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The following services are sometimes included depending on project requirements:

- Collaboration with client's reviewer
- Terminology management
- Translation memory management

Because cost and/or turnaround time can be a major factor in the decision process, alternative translation processes that employ the latest technological advancements in this field may be more suitable for some projects. These options are presented below.

2. Machine Translation Plus Post-editing

Post-editing is a process of refining machine translation results by a professional linguist to make the translation more accurate and natural in the target language. The post-editor has the same qualifications as a linguist used for human translations described above. He or she corrects mistranslations, typos, omissions, syntax and context issues in the machine translation output, thus ensuring that the end result is of a higher quality.

Post-editing has significant advantages over purely machine translation in that it improves the accuracy of the translation, especially when dealing with complex texts. Post-editing provides an opportunity to catch and fix the mistakes that will inevitably occur in machine translation. Additionally, post-editing can be quicker than doing a full human translation since the translator does not have to start from scratch. This means that translations generated using this approach are typically delivered faster and more cost-effectively.

The required process of post-editing a machine translation is described in detail in the ISO quality standard 18587:2017. It is designed to produce an acceptable level of quality and accuracy. This certification is likewise important for Language Service Providers, as it guarantees the integrity of their work and provides assurance to their clients.

The required steps as specified in the ISO 18587:2017 quality standard are:

- Project setup and document preparation
- Project review
- Raw machine translation
- Post-editing of the translation by independent editor(s)
- Final review by a professional proofreader and project manager

The following services are sometimes included depending on project requirements:

- Collaboration with client's reviewer
- Terminology management
- Translation memory management

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It should be noted that the amount of time spent on post-editing can vary somewhat, depending on the project requirements such as the final purpose of the translation, the complexity of the text, turnaround time requirements, as well as other factors. There should be general agreement between the Language Service Provider and the customer to define this aspect.

The pricing for machine translation plus post-editing depends on a variety of factors such as the file format of the source document, the complexity of text, language combination, presence of graphic elements that may need to be localized, formatting requirements, etc. Assuming the source document is available in editable format, e.g., in MS Word and has an average level of complexity in terms of layout, graphic elements, etc. , the cost should be approximately 50-60% of a human translation described in Section 1.

The turnaround time is reduced approximately parallel to this price reduction.

3. Machine Translation Only

Raw machine translation is a technology that produces translations of text directly from its source language to the target language, without any editing or post-translation review by a professional linguist. It is typically used when a quick translation of the original text is needed (gisting), or when there are not enough resources available to produce an accurate, human-generated translation.

Raw machine translation is based on the application of artificial intelligence and statistical techniques to produce a rough initial translation, using algorithms to identify linguistic patterns in source text. This translation is typically valuable as a rough draft that would require additional human editing and refinement to reach an acceptable level of accuracy and quality. This approach can produce translations rather quickly, but its results should not be considered as reliable. The translations it produces often do not discern the context based on subject area thus producing a translation with varying degrees of inaccuracies that are usually not suitable for professional or business use. For example, since raw machine translation does not consider the cultural context of a phrase or sentence, it can produce results that are confusing and may even be offensive.

The required steps to translate content using the machine translation approach are:

- Project setup and document preparation
- Raw machine translation
- Final review by the project manager

The pricing for machine translation depends on a variety of factors such as the file format of the source document, the complexity of the text, language combination, presence of graphic elements that may need to be localized, formatting requirements, etc. Assuming the source document is available in editable format, e.g., in MS Word and has an average level of complexity in terms of layout, graphic elements, etc. , the cost should be approximately 5-10% of a human translation described in Section 1.

The turnaround time is reduced approximately parallel to this price reduction.

The table below summarizes the process steps associated with the three different translation approaches described in this document to facilitate a relative comparison in terms of quality, cost, and delivery time.

Translation process	Process Steps	Quality	Pricing/Delivery in % of baseline (*)
Human Translation **Supporting Quality Standard:** **ISO 17100:2015**	• Project setup and document preparation • Project review • Translation by professional linguist(s) • Bilingual editing (revision) of the translation by independent editor(s) • Final review by a professional proofreader and project manager	★★★★★	**Baseline**
Machine Translation + Post-Editing **Supporting Quality Standard:** **ISO 18587:2017**	• Project setup and document preparation • Project review • Raw Machine translation • Post-editing of the machine translation by independent editor(s) • Final review by a professional proofreader and project manager	★★★★☆	**50 to 60%**
Machine Translation Only **Supporting Quality Standard:** **NA**	• Project setup and document preparation • Raw Machine translation • Final review by our project manager	★☆☆☆☆	**5 to 10%**
			* Clean MS Word or similar file format with minimal formatting/graphics requirements